

(19) World Intellectual Property
Organization
International Bureau



532907

(43) International Publication Date
3 June 2004 (03.06.2004)

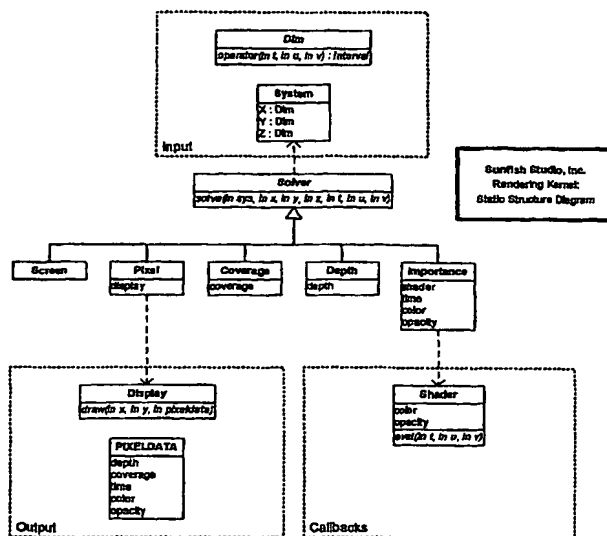
PCT

(10) International Publication Number
WO 2004/046881 A2

- (51) International Patent Classification⁷: **G06F** 55417 (US). SCHMIDT, David, R. [US/US]; 9329 Oliver Avenue North, Brooklyn Park, MN 55444 (US).
- (21) International Application Number: PCT/US2003/036836 (74) Agent: STEMPKOVSKI, JR., Richard, C.; Nawrocki, Rooney & Sivertson, P.A., Suite 401, Broadway Place East, 3433 Broadway Street Northeast, Minneapolis, MN 55413 (US).
- (22) International Filing Date: 17 November 2003 (17.11.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/426,763 15 November 2002 (15.11.2002) US
- (71) Applicant (for all designated States except US): SUNFISH STUDIO, INC. [US/US]; 5364 Shoreview Avenue, Minneapolis, MN 55417 (US).
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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: VISIBLE SURFACE DETERMINATION SYSTEM & METHODOLOGY IN COMPUTER GRAPHICS USING INTERVAL ANALYSIS



(57) Abstract: A system is provided for visible surface determination in furtherance of photorealistic rendering in a computer graphics environment. The system includes a scene database and a processor, visual characteristics of objects of an image frame of a scene of the scene database are delimited as geometric primitive. The processor, for executing an interval analysis, to a user degree of certainty, accurately and deterministically ascertains a visible solution set of an area not exceeding a pixel dimension for a pixel of an array of pixels that form said image frame.

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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM,

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

- without international search report and to be republished upon receipt of that report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/36836

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06T 15/00

US CL : 345/419, 421, 422, 423, 424, 426, 427, 428, 441, 552, 581

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/419, 421, 422, 423, 424, 426, 427, 428, 441, 552, 581

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST, WEST, ACM

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,600,763 A (GREENE et al.) 04 June 1997 (04.06.1997), col. 3, lines 36-40; col. 4, lines 38-52; col. 12, lines 29-62.	1-30
Y	US 6,707,452 B1 (VEACH) 16 March 2004 (16.03.2004), col. 2, lines 50-67; col. 5, lines 7-22; lines 42-56; col. 7, lines 15-27, lines 48-57; col. 8, lines 48-55; col. 9, line 66 through col. 10, line 5; col. 11, lines 10-18.	1-18, 20-30
Y	US 6,342,886 B1 (PFISTER et al.) 29 January 2002 (29.01.2002), col. 5, line 52, line 62 through col. 6, line 13.	8, 19

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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Date of the actual completion of the international search

18 May 2004 (18.05.2004)

Date of mailing of the international search report

14 JUN 2004

Name and mailing address of the ISA/US

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